

Early recorded violin playing: evidence for what?

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Recordings of violin playing from around 1900 tell us something about how some people played the violin around 1900. But what do they tell us about playing in 1890, or 1880, or 1870, and so on? It is very tempting to try to argue backwards. But is it wise?

Two observations are especially relevant. First, we learn from 100 years of recorded music that performance styles change very quickly. They change fast enough and to a sufficiently great extent that over about twenty years or so general performance styles are recognisably different.¹ If that was also true before recordings then we cannot use them as evidence of playing from before about 1880. Secondly, comparing what musicians say about how to play their instrument with what recordings tell us about how they actually played shows absolutely clearly that written evidence is virtually useless as evidence of how people sounded and of how they made music. I cannot emphasise this strongly enough. There is no possibility, using only (for example) Leopold Auer's textbooks and things his contemporaries say about performance, or Lilli Lehmann's book *How to Sing* and the evidence from her contemporaries, of arriving at a performance style anything like what we hear from them on record.² Written evidence is not nearly enough. Put these two facts together and you have a very compelling argument, it seems to me, for the hopelessness of any attempt to reconstruct past performance styles not documented on record.

This is indeed a depressing note on which to begin a discussion of nineteenth-century string playing. But it seems wise to face facts right at the start. And now I have put it in those stark terms, let me offer in the rest of this article three 'crumbs of comfort' (Trostpflaster).

First, I think there is some possibility that performance styles did not change as quickly before recordings as they did once recording was introduced. My reason for thinking that that might possibly be the case has nothing to do with music history: the apparent stability of the documentary evidence through the eighteenth and nineteenth centuries cannot be translated into a safe assumption that sounds and styles remained

stable. Rather I offer an entirely theoretical argument that arises from an idea about how performance style may change.

It seems increasingly probable, although it would take a long article to explain the full reasoning, that there is a strong relationship between musical performance style and general styles of communication.³ By 'general styles of communication' I mean the ways people talk to one another, how they express their feelings, styles of acting, attitudes to the expression of emotion, and so on. For the twentieth-century it may eventually be possible to demonstrate this using film, writings, and sound recordings. If the relationship between expressive communication in these different media can be better understood it ought to become possible to use surviving evidence in one domain to provide insights into undocumented practices in another. In that case, the ways in which, and the extent to which, emotional communication through writing changes during the nineteenth century ought to offer a clue to the way, and the extent to which, performance style changed as well. But it is a hugely complex task to show that relationship and it needs a vast amount of research: it will take many years (perhaps generations) to achieve. I mention the possibility, though, as something to think over. For now the main point to bear in mind is that musical performance style is not immune from other kinds of expressive styles, and therefore neither is it immune from the processes by which other kinds of style form, are transmitted, and change. In a separate study in progress I attempt to sketch a very much simplified view of this process, on which the next few pages draw.⁴

For the sake of simplicity let us focus on just one way in which musical performance style must change. Presumably musicians develop in their student years through modelling themselves on players or singers whom they hear around them, and according to templates set out by their teachers. But by the end of their training certain individual characteristics will usually begin to become audible in the best musicians, characteristics that set them apart as special in some enjoyable way. There cannot be too many of these, nor can they depart by very much from the norm – otherwise the playing style will seem too strange, will be rejected by critics, work will dry up, and they will no longer be heard and be able to influence anyone else. Throughout their lives musicians are also hearing other players and are adopting from them, no doubt often without realising, features of personal style that they find particularly effective and wish to use in their own playing. Habits that seem useful to many players will spread quite fast, habits that do not will die out. How fast new habits are adopted

depends on how many other players one hears, especially during one's early years. Hence hothouses of musical culture and education, where many famous players are heard by many young high-flyers (places like London, Berlin, Paris) will have a disproportionate effect in diversifying performance style. And when one looks at the large number of musicians who trained in a small number of institutions in the decades leading up to 1900, as music conservatories became established as the normal route into the music profession, it becomes less surprising that style changed so much at around that time.⁵

Recording must also have disseminated performance styles, but we need to consider rather carefully what its effect would have been. The common assumption at the moment is that it would have tended to homogenise playing by spreading a norm far and wide.⁶ But it is by no means clear that norms were being recorded in the early years. The equipment responded better to some musicians than to others, and so we have sounds only from those who recorded least badly (one can hardly say 'best' when the results are so imperfect). If recorded artists were chosen for their penetrative sound, rather than for their style, then that may help to explain why we hear such stylistic diversity represented on cylinders and early 78s.⁷ And because of this variety, early recordings probably diversified more than they reduced personal styles. But this would not have continued to be so for very long. As recording became more sensitive, which it did during the 1910s and 20s, very much so from the introduction of electrical recording in 1925, it became increasingly possible to choose recording artists on the basis of their perceived musicianship. It seems probable that that meant choosing artists whose style conformed more consistently to current norms of excellence, in other words to the current general style. And so recorded performances became stylistically more consistent. It is certainly the case that over a longer period of time, once listening to recordings became common – and very noticeably by the second half of the twentieth century – the mingling of styles, made possible by travel and recording, produced something very much more uniform overall. National and local styles, and even individual players, became less distinct.

Even so – and this is the interesting point, not yet given enough emphasis in writings on this subject – performance style remained notably varied at the micro level (the note or below) and continued to change rapidly. In other words, although the general vocabulary of expressive gesture became more limited, the way those gestures were deployed from moment to moment continued to be extremely varied, so that ways of

playing particular pieces did not become any more similar than before at the level of note-to-note detail. Lots of different ways of shaping details continued to be found. And it is evident to anyone who listens to a variety of recordings of the same piece from across the twentieth century that performance styles in general have changed hugely and quite quickly. Even after twenty years, playing and singing sound significantly different; after fifty only relatively gross features (slowing down at cadences, using loudness to create intensity, and so on) remain unchanged. To understand how this can be so, we need a theory that explains how detailed changes can occur, can be transmitted and can accumulate over time to form a new style. A genetic analogy provides a powerful heuristic to explain how this may work.

In small and isolated populations a few powerful individuals can ensure that their genes come to dominate. That population may be very different from others, but there will be little change within it except by chance mutation, which is much easier at the genetic level than in society, where artificial rules tend to inhibit change over time. An isolated musical society, therefore, would tend to maintain its traditions rather strictly, producing a recognisable 'school' of playing. But musical populations were never all that isolated. Musicians have always travelled in search of work. So even though a national or local tradition might be confined there is no reason to suppose that many such traditions became moribund or decayed, whatever that would mean in musical terms – perhaps a form of mannerism so extreme that no one outside the immediate circle would find it persuasively musical. Nevertheless, exchange would have been constrained: most musicians would be local in most traditions.

Recording, however, would function almost as effectively to cause musical styles to coalesce as did increased mobility. When migration leads gene pools to mingle, two things happen: on the large scale, features of both races mix and after a few generations it becomes increasingly hard to say whether an individual belongs to one or the other; but on the small scale, because the population is genetically more varied, a much wider range of mutations occurs than would have been possible with fewer and less genetically diverse individuals. Some of these mutations will be useful and will survive through natural selection, and over time there will be more rapid evolution than is possible in smaller groups. What this means for musical performance – though one cannot check this reliably against evidence, since before recording there is not enough – is likely to be that while general features of performance style have become homogenised, there is much more variation between individuals than there

was before, and there is more rapid change in performance style over time. Styles would be more similar from place to place at any one time, but they would change more quickly because, through recordings, individual mutations were disseminated so much more rapidly.

What little evidence there is suggests that this is so. We know that performance style has changed hugely during the past 100 years, because we can hear it on record. We cannot hear it any earlier, but scholars who have studied teaching manuals on musical performance have been arguing that there is much more consistency during the nineteenth and eighteenth centuries.⁸ There may be an element of wishful thinking there: it would certainly be very convenient for students of historical performance practice to be able to argue that recordings around 1900 tell us much about earlier performance. But if recordings and the democratisation of travel contributed to a pooling of performance styles then the genetic analogy suggests that scholars making this argument may have a point. Styles may have changed more slowly the earlier one goes back in time.

So that is my first crumb of comfort. It has at least one substantial flaw, however, and that is that the earliest recordings seem to suggest that in 1900 violin and singing styles had changed radically quite recently. The styles of singing and playing we hear from the oldest recorded musicians—such as Carl Reinecke (born 1824), Joseph Joachim (b. 1831), Sir Charles Santley (b. 1834), Adelina Patti (b. 1843)—are very different from those of their immediate followers. And one needs to know why. Mark Katz has proposed that it was caused by recording itself.⁹ His argument is interesting and worth serious attention. The difficulty with it is that the dates do not quite match up: this change had already happened before recording began. Only in the oldest performers, born before 1850, do we hear the old, much plainer style, characterised by fast and shallow vibrato, rubato at note level but less from bar to bar, a light and responsive tone. Among younger violinists (Auer, Viardot, Rosé) this older style was already disappearing, and the generation born after 1870 used it not at all.¹⁰ That generation (Flesch, Kreisler and their contemporaries) would have developed their own personal styles in the 1890s before commercial recording began, and long before recordings became common enough to influence players (which I would think was not until at least the 1920s). The more conventional explanation for the new more demonstrative style, and it may be correct, is that orchestras had become larger and

louder and so ways had to be found for soloists to penetrate through these bigger sound textures: hence the strengthening of singer's formants and the widening of vibrato. That may be a good enough explanation (although orchestras had been getting larger and louder since Beethoven and Berlioz), but without recorded evidence covering the change we cannot know for sure.

All we can do – and this is my second crumb of comfort – is to look at the evidence of the earliest recordings and see what it may suggest. And that is what I should like to do for the rest of this article. Again I draw on the study-in-progress mentioned above.¹¹

Joseph Joachim was 73 when he recorded in 1903.¹² He had studied in Vienna in the late 1830s and early 40s, and then with Mendelssohn, later working with Liszt and most famously with Brahms. How he played is therefore of some historical interest. There is very limited vibrato; what there is is very light, and used only on longer notes. Portamento is used but mainly in pathetic passages, expressing character, not as a routine means of getting around the instrument. Rubato has two functions; at the level of the beat it is used only when it contributes to characterisation, marking the difference between more forceful passages (which are faster) and more pathetic passages (which are slower). From note to note, however, rubato is used continuously, stressing (by lengthening) notes of structural importance within a phrase, so that, for example, scales tend to be fast but may linger on melodically or harmonically significant pitches. In these senses Joachim's playing is not unlike the more expressive end of modern Historically Informed Performance (or HIP). But Joachim has a much wider range of sounds and styles than is common today (and I do not think this has been emphasised quite enough in the literature). His Bach playing is extremely clean and highly articulated, with very narrow and rather uneven vibrato on the long notes only; his Brahms (Joachim's arrangement of two of the Hungarian Dances) adopts a gipsy-style rubato; and in his own 'Romanze' he uses far more portamento to bring out the sentimental character of the composition.¹³ In other words, Joachim's performance style varies in order to emphasise his notion of the composition style, something that happened much less in subsequent generations. To us his Bach playing may sound HIP – and he uses largely gut strings, as was still the norm – but his Brahms uses the Torte bow to attack chords with passion, and his Joachim is as sentimental as anything from the 1920s. Some of these differences must have been evened out by the insensitivity of the recording technology – his relatively

consistent loudness throughout may be misleading, therefore, maintained only for the sake of the recording – but that so much comes through only emphasises just how powerful and varied his playing must have been. Later twentieth-century playing would have seemed monochrome by comparison.¹⁴

David Milsom has made a number of useful comparisons between Joachim and Adelina Patti,¹⁵ and indeed they have much in common in their limited and targeted use of vibrato, portamento and rubato; but one could equally appropriately compare Joachim to Santley or to other early recorded singers who have left more powerful performances, for example Lilli Lehmann (born in 1848). The unbroken melodic continuity managed so well by Patti is there in Joachim's *Romanze* but totally foreign to his Bach, and for a vocal analogue to his Brahms one would need to look to the most forceful operatic singing of his time. Equally, his attention to the character of the composition, and the range of expressive approaches he takes as a result, has no use for the consistency of expressive language that settled on violin playing as vibrato became continuous and universal over the next two decades. Responsiveness to changing characters was crucial, but it is above all his very limited vibrato that separates him out from violin playing over the next seventy years and that it is so tempting to suppose was characteristic of his unrecorded predecessors. But was it really characteristic of them? Without more of them on record I do not see how we can possibly know.

Let us move on a generation and see what else we can learn. Fritz Kreisler is always cited as the father of continuous vibrato, and while his recordings certainly offer very clear examples of its early use, it seems very unlikely that the cause can have been so simple. And indeed when we listen to a wider range of early recorded players it quickly becomes clear that there was an increasing use of vibrato by the generation that followed Joachim's; the differences, however, are nothing like as striking as some discussions have suggested. Table 1 sets out some rough figures for speed and width in a chronological sequence of players. The numbers are obtained by reading off the timings and frequencies in spectrograms, and since there is no practical way of measuring every vibrato cycle in a recording and averaging them it is not a very reliable set of numbers. It depends on one's ability to make accurate measurements by hand, and on one's patience to make enough of them. I do not make any great claims on either count, but it gives a rough idea, and I hope it is accurate enough for our purposes.

[INSERT TABLE 1 NEAR HERE]

Joachim's own palette, as I have suggested, included a wide range of sounds and styles, including light and infrequent vibrato in his Brahms playing. Leopold Auer, born in 1845, was recorded in 1920 playing Tchaikovsky. Of course by 1920 he may have absorbed the manners of younger players, but when he objected strongly to continuous vibrato in his textbook from 1921 I think we can assume that his own vibrato, which was continuous but narrow, was not the kind of vibrato he was talking about.¹⁶ Whatever he found objectionable, then, it is unlikely to have been the principle of continuous vibrato, but rather a recent practice more noticeable than his own, for example Kreisler's or even younger players born in the 1880s and 90s. His vibrato shows at least the beginnings of a tendency—perhaps, in fact, the continuation of a tradition. Certainly the next generation was using light but noticeable vibrato much of the time. Arnold Rosé, born in 1863, is sometimes said to have been one of the last orchestral leaders (of the Vienna Philharmonic) to insist on orchestral playing 'without vibrato';¹⁷ but it is clear from his recordings that 'without vibrato' is a comparative, not an absolute. And players born only a bit later use it all the time, albeit still relatively lightly; examples include the American Maud Powell, born in 1868, and the immensely influential Carl Flesch, born in 1873.

There is one important difference, though, between the older players' continuous vibrato and that developed by the younger ones. Joachim, Auer, Viardot, and Rosé, have a vibrato that varies from cycle to cycle; it varies slightly in speed and considerably in depth, without any apparent cause related to the composition. But in Flesch and then Kreisler, followed by Hubermann and Heifetz, we begin to hear players varying vibrato according to changes in emotional temperature within a phrase. At high-points dynamics are louder and vibrato is deeper, at low points, especially phrase-ends, dynamics and vibrato both tail off. To judge by the *Violinschulen* of Spohr (1832), and later David (1864), the linking vibrato speed and loudness goes back a very long way,¹⁸ but both authors are discussing single notes requiring special treatment, not a continuous vibrato that varies from moment to moment as the melody changes in pitch and loudness, which seems to be a later development. Whether this generation of players born in the 1870s was really the first to adopt it we cannot tell without more and earlier recordings.

Because this continuous change happens in coordination with changes in the musical surface one hardly notices it in normal listening. This is a phenomenon comparable to perceptions of rubato: research by Bruno Repp has shown that people do not easily notice it in conventional locations (for example phrase-ends).¹⁹ But with visualisation tools, such as the spectrum analysis software used to gather the data in Tables 1 and 2, it is much easier to see. So while this apparently new approach to vibrato remains to an extent in the perceptual background, what seems most immediately obvious about the development of Kreisler's performances, as one listens to them in chronological sequence, is not so much their flexibility coordinated with the score, but rather the way in which his vibrato becomes a lot more even.

[EXAMPLE 1 NEAR HERE]

Example 1 shows the same note from the 1912 and the first of the 1926 recordings of Kreisler's *Liebesleid*. The difference may not look great, but consider that the unevenness in the height of the cycles in the 1912 note differ by almost the depth of half a cycle, and the depth of the cycles themselves varies by almost the same amount, and you can see why the 1926 note sounds more regular.²⁰ The unevenness is never great enough to sound rough—on the contrary, it sounds rather colourful—but Kreisler does seem during his career to have developed the skill to be much more regular, and presumably he preferred the results. The downside, and of course this is a matter of opinion, is that the sound is just a bit less interesting, a bit more mechanical and perfect, rich but unvarying.

How reliable this sort of selective sampling is as evidence for the development of vibrato remains to be seen; a much more thorough study is required, one that takes account also of the research into the interaction of the Franco-Belgian with other national schools of violin playing.²¹ I think that because players' personal styles tend to remain fairly stable (though Kreisler is a partial exception) birth date is much more relevant for an understanding of their style than recording date, but it can only be one factor, and seems unlikely to be more important than teacher, or the years and place in which a student was first exposed to a range of other fine players. Clearly there were plenty of tendencies leading towards wider, more even, and continuous vibrato. But we simply do not have enough evidence to show that it became a norm as late as the early twentieth century, nor that Kreisler or even his generation was responsible for its universal adoption.

[TABLE 2 NEAR HERE]

Table 2 provides some statistics for later players. Vibrato characteristics change far less clearly across Table 2 than one might have expected. If we compare Hubermann (b. 1882) with, for example, Mutter (b. 1963) it is hard to say who is the more 'modern'. More interesting, if we want to trace developments, is Hubermann's varying use of vibrato, which tends to get deeper as a note becomes louder, and also as phrases rise towards a peak, while lower notes tend to have shallower vibrato, sometimes reduced to almost none as phrase-ends complete. For Hubermann, then, there is a clear connection between vibrato depth and emotional weight; which is something we discerned on a considerably smaller scale in Joachim, and to some extent in Flesch, but only rarely in Kreisler. From Hubermann onwards, though, every player up to the present day makes this relationship absolutely consistently. Is it possible that the tying together of expressivity in loudness, vibrato and the composition's surface – which has seemed ever since so obvious to players that it was not questioned again until so-called 'Historically Informed Performance' – really did not happen before players born in the 1880s? It seems a little unlikely, though perhaps only because to us this relationship seems so 'natural', and it may be simply that the generations represented at the top of Table 1 recorded too little for us to hear examples of it, or that it temporarily fell out of use during a more 'puritan' phase in the history of performance style of which Joachim was a late representative. It is a question for further research.

What can we conclude? First of all, that vibrato changed a lot in the early twentieth century. It became regular in amplitude and rate (that is to say it became regular in pitch width and speed in cycles per second), and it became variable, deeper when higher or louder, shallower when lower or softer. In other words it became responsive to the changing musical surface. It became another means to expressivity. If we are content to take Joachim as our evidence for the whole of the later nineteenth century, we can also say that vibrato before these changes varied according to the character of a composition, but not so much from moment to moment, or in any regular way, within a piece. Later it became more regular, more controlled, and more important. I suggest below that this was linked to the decline of portamento, that as portamento became less acceptable vibrato became more expressive to fill the gap.²²

What does this tell us about the nineteenth century? Not very much, I am sorry to say. Joachim may not be representative. We cannot know whether he is or not, unless someone can produce documents from a range of nineteenth-century musicians all saying that Joachim sounds exactly like everyone else, which I think is unlikely. All we can do is point, as Milsom has done, to the similarities between some aspects of Joachim's playing and the singing of Patti, and suggest that the simplicity of their performing, compared to the more demonstrative music-making of the next generation, agree in pointing towards a generally simpler style.

I have not provided you with a similar table showing changes in portamento. It is harder to do because as well as length, and the pitch interval covered by a portamento slide, one would also have to include the shape of the curve, in other words the changing speed in relation to changing frequency, and perhaps also the changing loudness in relation to both. An efficient means of extracting such data has yet to be developed. It is also hard, when a slide joins notes with vibrato, to decide when the vibrato cycle stops and the portamento slide begins and vice versa. But if one could tabulate it one would see a decline in the use of portamento apparently related to (or at least coincident with) an increase in vibrato.

I have suggested in a recent article a reason why portamento declined.²³ Portamento, I suggest, calls up our naturally-selected responses to infant-directed speech, more widely known in the psychological literature as motherese (popularly, babytalk), a manner of loving vocal communication found between carer and infant in cultures across the world, and in both tonal and non-tonal languages, and characterised above all by wide pitch glides. As typically used by early recorded string players in slow movements, and by singers in sad or loving arias and songs, portamento brings with it, I suggest, sub-conscious memories of the sounds of our earliest loving relationship. In an age – such as the 1900s and 1910s – when music appears to have been enjoyed especially as a comfort, for its familiarity and sense of security, portamento made perfect sense: it felt at home. But the First World War and the rise of modernism, of new objectivity and neo-classicism, conflicted with those values: as sentimentality declined in artistic expression, so in the 1920s and 30s portamento began to be used less. The Second World War dealt it a death blow. After the horrors of the Nazi period, and especially after the discovery of the camps at the end of the war, it was impossible to see music, especially Austro-German classical music, as innocent entertainment. Performers and writers about music begin in the 1950s to find much

darker meanings in music, especially in song which starts to be read psychologically – think of Dietrich Fischer-Dieskau and the range of sounds he makes to suggest deeper meanings than those apparent on the surface of Lieder that early in the twentieth century were read quite innocently. And commentators, Adorno outstandingly, increasingly saw a relationship between the breakdown of tonality and a fractured society. Portamento, with its strong associations of naivety, was impossible in that cultural context, and disappeared quite suddenly after 1945.

Vibrato, I suggest, took its place. Back in the 1910s and 20s, as portamento began a slow decline, vibrato began to widen and slow, in other words it became more noticeable. And after 1945 it quite suddenly became much more obvious. Think of the Amadeus Quartet who started at exactly that time. Expressive work that used to be done by portamento gradually came to be done instead by vibrato. Vibrato, calling up vocal responses (the tremor in one's voice at times of deep emotion) that were not specific to our childhood, was simply a more neutral representation of deep feeling, without the unacceptably naive associations of portamento. And so it cannot have been perceived in the same way. Vibrato in 1950 would not have felt equivalent to portamento in 1900: there had been a real change in the perception of expressive musical performance, not simply a translation of expression from one mode to another. And this is another reason for us to be very cautious about imagining that we can know anything about how music sounded to people before – or even after – recordings began. It is one thing to hear the noise it makes: it is another to know how that sound felt to listeners.

My third and final crumb of comfort can be offered quite briefly. Indeed, I have mentioned it already in passing. It is my impression, based on recorded performers of the twentieth century, that most musicians – not all, but most – develop a personal style in their youths, say by the end of their twenties, and retain it fairly unchanged throughout the rest of their lives. There are exceptions. The pianist Artur Schnabel is one. And some, like Kreisler, may continue to develop into their thirties and forties. But on the whole most players do not change their style hugely later in life. In that case, there is some chance that we can learn something from Joachim about playing that was newly fashionable around 1860, that Auer can tell us something about playing newly fashionable around 1870, Viardot around 1880, Rosé and Powell around 1890, and Flesch and Kreisler around 1900. I think that more or less squares

with the evidence of the first two decades of recording. Kreisler, as we've seen, was still developing through the 1910s and into the 1920s. But most of the next generation of violinists who recorded in their twenties are recognisably the same players later in life.

I do not think we should get too carried away by this idea. I said that we could learn *something* from these players about the styles current in their younger days. But what? Knowing what stays the same and what changes is the difficulty. If recording had started in 1930 we should have a mistaken idea about how Kreisler sounded in his youth and about the earlier state of vibrato. The same could be true of all these older players.

So these really are no more than crumbs of comfort. We need to be very cautious indeed about reading backwards from the earliest recordings.

Table 1– Violin vibrato from Joachim to Kreisler

	Born	Plays		Rec.	Speed*	Depth*	Comments	Source
Joachim	1831	Brahms	Hungarian Dance	1903	0.12-0.15s	0.2-0.4st	Rare, very uneven	DVA I, disc 1, tr. 2
Auer	1845	Tchaikovsky	Melodie	1920	0.16s	0.3st	Continuous, narrow	DVA I, disc 1, tr. 5
Viardot	1857	Saint-Saens	Prelude	1902	0.14-0.17s	0.3-0.7s	Uneven	DVA I, disc 1, tr. 6
Rosé	1863	Bach	Prelude	c1928	0.16s	<0.3st	Very uneven	DVA I, disc 1, tr. 10
Powell	1868	Elgar	Salut d'amour	1913	0.15s	0.6st	Uneven	DVA I, disc 1, tr. 18
Flesch	1873	Tenaglia	Begl'occhi	1905	0.16-0.18s	0.4-0.7st	Varies with context	Symposium 1034
		Handel	Sonata	1936	0.16-0.18s	0.4-0.7st	Varies with context	DVA I, disc 2, tr. 1
Kreisler	1875	Smetana	Bohemian Fantasie	1910	0.12-0.16s	0.4-0.6st	Varies with context	RCA 09026 61649 2, disc 1, tr. 1, 11
		Kreisler	Liebesleid	1910	0.13-0.15s	0.5-0.6st	Varies with context	RCA 09026 61649 2, disc 1, tr. 8
		Bach	Gavotte	1910	0.14s	0.4-0.5st	Longer notes only	RCA 09026 61649 2, disc 1, tr. 19
		Kreisler	Liebesleid	1912	0.13-0.15s	0.5-0.6st	More rubato than 1910	RCA 09026 61649 2, disc 2, tr. 2
		Schubert	Ave Maria	1914	0.15-0.16s	0.3-0.4st	With McCormack	RCA 09026 61649 2, disc 2, tr. 14
		Bach	Adagio (concerto)	1915	0.13s	0.5st	With Zimbalist	RCA 09026 61649 2, disc 2, tr. 19
		Smetana	Bohemian Fantasie	1916	0.13s	0.5-0.7st	More rubato than 1910	RCA 09026 61649 2, disc 4, tr. 5
		Kreisler	Liebesleid	1926	0.13s	0.5st	Even	RCA 09026 61649 2, disc 7, trs. 19, 20
		Beethoven	Larghetto (concerto)	1926	0.15-0.16s	0.3-0.5st	More even than 1910s	Music & Arts CD 4290, tr. 2
		Beethoven	Concerto	1936	0.14-0.16s	0.3-0.6st	Varies with context	Naxos 8.110959, tr. 2
		Kreisler	Liebesleid	1942	0.14s	0.5st	Even	RCA 09026 61649 2, disc 11, tr. 4
Zimbalist	1889	Bach	Adagio (concerto)	1915	0.17s	0.4st	With Kreisler	RCA 09026 61649 2, disc 2, tr. 19

* rough figures. Speed = length in seconds of one vibrato cycle; Depth = extent in semitones of one vibrato cycle.

EXAMPLE 1

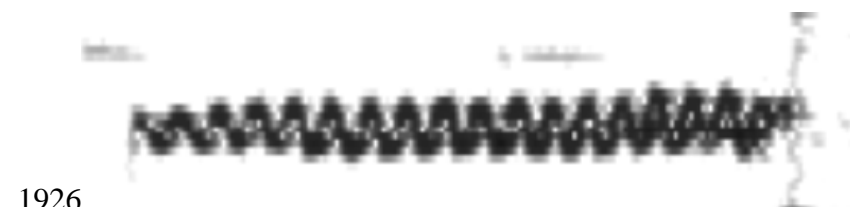
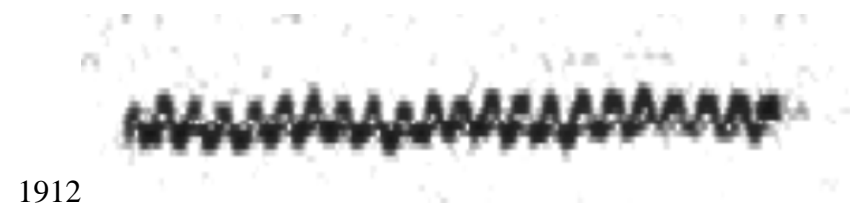


Table 2 - Violin vibrato in concerto playing from Flesch onwards

	Born	Plays		Rec.	Speed*	Depth*	Comments	Source
Flesch	1873	Beethoven	Allegro ma non tr.	>1925	0.16s	0.7-0.9st		Symposium 1032, tr. 6
Kreisler	1875	Beethoven	Allegro ma non tr.	1926	0.14s	0.3-0.6st	Steady speed, somewhat even depth, lots portamento	Music & Arts 290, disc 1, tr. 2
		Brahms	Adagio	1926	0.14-0.15s	0.3-0.6st	Steady speed, somewhat erratic depth	ditto, disc 2, tr.2
Hubermann	1882	Brahms	Adagio	1944	0.17-0.18s	0.4-1.0st typ 0.7-0.8	Depth varies with expressivity & pitch	Music & Arts 1122, tr. 2
Busch	1891	Brahms	Adagio	1943	0.15-0.17s	0.3-0.7st	Depth varies with expressiv.	Music & Arts 1107, tr 2
Szigeti	1892	Brahms	Adagio	1928	0.15	0.5-0.7st	Depth varies with context	Naxos 8.110948, tr. 5
Kulenkampff	1898	Beethoven	Allegro ma non tr.	1936	0.13	0.5-0.9st	Steady speed, depth varies a lot with context, less portamento than Kreisler	Telefunken LP transf
Heifetz	1901	Brahms		1939	0.13-0.16	0.5-0.7st	Both vary with pitch	Naxos 8.110936, tr. 5
		Beethoven		1940	0.13-0.16	0.3-0.9st	Both vary	
Milstein	1903	Brahms		1954	0.14-0.15	0.3-0.9st	Depth varies with express.	EMI 5 67584 2, tr. 5
		Beethoven	Larghetto	1955	0.14-0.15	0.3-0.8st	Ditto. Hairpin vibrato (often coordinated with dynamics)	tr. 2
Schneiderhan	1915	Beethoven	Allegro		ditto	ditto		tr. 3
			Allegro ma non tr.	1962	0.14	0.5-0.8st	Vibr. on shorter notes too, more dynamic fluctuation for expressivity, no portamento	Telefunken LGX 66017
Shumsky	1917	Beethoven	Larghetto	1988	0.15-0.17	0.3-0.7st	Slower = deeper = more expres.	Sanctuary CD RSN 3032, tr. 2
Neveu	1919	Brahms	Allegro		0.15	0.2-0.8st	Varies much with express.	tr. 3
			Adagio	1946	0.14	0.5-1.1st	Depth varies with express. uneven cf Kreisler.	Dutton CDBP 9710, tr. 2
Stern	1920	Tchaikovsky		1949	0.15	0.5-1.1st		Music & Arts 837, disc 2, tr. 2
				1977	0.15-0.16	0.4-0.6st	Depth varies with express.	Sony SMK 64127, tr. 5
			Brahms	Adagio	1959	0.14-0.16	0.4-0.7st	Faster & deeper with more expression (very slow)
Perlman	1945	Beethoven	Larghetto	1980	0.16-0.17	0.3-0.7st	Depth var widely with expr	EMI 5 66900 2, tr. 2 & 3
			Allegro		0.14-0.15	0.3-0.7st	Hairpin notes > Milstein	
Kremer	1947	Brahms	Adagio	1976	0.16	0.4-1.0st	Semiquavers have no vibrato	EMI 5 69334 2, tr. 2
						Depth varies with express.; vibrato hairpins		
Chung	1948	Beethoven	Larghetto	1979	0.14-0.19	0.3-0.8st	Speed varies a lot with depth	

			Allegro		0.14-0.15	0.3-0.7st	Speed steady, depth varies with expression	Decca 452 325-2, disc 1, tr. 5 & 6
Mutter	1963	Brahms	Adagio	1981	0.14-0.17	0.3-1.0st	Slower=shallower	DG 445 515-2, tr. 5
Bell	1967	Beethoven	Larghetto	2000	0.16-0.17	0.2-0.7st	Depth varies with expressivity	Sony SK 89505
			Allegro		0.15-0.16	0.3-0.7st		
Shaham	1971	Brahms	Adagio	2000	0.14-0.16	0.4-1.0st	Faster=deeper=higher=expressive	
Vengerov	1974	Brahms	Adagio	1997	0.16-0.17	0.3-0.9st	Loud long port. exceptional	DG 289 469 529-2, tr. 2
Barton		Brahms	Adagio	2002	0.15-0.18	0.2-0.8st	Depth varies with expr.	Teldec 0630-17144-2, tr. 2
							Mostly 0.15 but depth varies with expression	CDR 90000 068, tr. 3
Hahn	1979	Beethoven	Larghetto	1998	0.15-0.17	0.3-0.6st	Faster and deeper with louder	Sony SK 60584, tr.2 & 3
			Allegro		0.13-0.15	0.4-0.6st		

Speed: difference of 0.01 = constant; difference of 0.02 or more = varies.

1. Consider, for example, Auer (born 1845), Rosé (1863), Hubermann (1882), Heifetz (1901), Stern (1920), Perlman (1945), Bell (1967). Or Adelina Patti (1843), Nellie Melba (1861), Lotte Lehmann (1888), Peter Anders (1908), Dietrich Fischer-Dieskau (1925), José Carreras (1945), Ian Bostridge (1964).

2. Leopold Auer: *Violin Playing as I Teach it*, London 1921. Lilli Lehmann: *How to Sing*, New York 1914; revised edition cited here, 1924. I compare Auer's comments on vibrato with his recorded playing below. For Lehmann, compare her warnings to singers to avoid vibrato (pp.140-5) with her own singing, whose vibrato is wide (see the CD *Lebendige Vergangenheit MONO 89185*, issued 1999). My point is not that Auer and Lehmann were hypocrites, but rather that to understand their advice in our terms is seriously to mistake their meaning. Violin playing or singing that tried to reconstruct their sound from their words would be unrecognisably wide of the mark. Needless to say, all the sounds we make based on earlier treatises (including for example all those from the 18th century whether Couperin, Quantz, Leopold Mozart, or whoever) are certainly wildly different from the sounds those authors were describing.

3. I have discussed this in a little more detail in Daniel Leech-Wilkinson: Portamento and musical meaning, in: *Journal of Musicological Research* 25 (2006), pp. 233-61.

4. Daniel Leech-Wilkinson: *The Study of Musical Performances*, book in progress.

5. See, for example, David Milsom's discussion of genealogies of violin playing in *Theory and Practice in Late Nineteenth-Century Violin Performance*, Aldershot 2003, pp. 13-28.

6. Robert Philip: *Performing Music in the Age of Recording*, New Haven 2004; Mark Katz: *Capturing Sound: How Technology has Changed Music*, Berkeley and Los Angeles 2004.

7. Philip: *Performing Music*, p. 28.

8. Robin Stowell: *Violin Technique and Performance Practice in the Late Eighteenth and Early Nineteenth Centuries*, Cambridge 1985; Clive Brown: *Classical and Romantic Performing Practice 1750-1900*, Oxford 1999; John Potter: Beggar at the door: the rise and fall of portamento in singing, in: *Music & Letters* 87 (2006) pp. 523-550.

9. Mark Katz: *The Phonograph Effect: The Influence of Recording on Listener, Performer, Composer, 1900-1940*, PhD dissertation, University of Michigan 1999.

10. For some statistics see Table 1 below.

11. The following discussion of Joachim and Kreisler draws heavily on the study-in-progress quoted above.

12. For an excellently documented study of Joachim see Beatrix Borchard: *Stimme und Geige: Amalie und Joseph Joachim. Biographie und Interpretationsgeschichte*, Vienna 2005.

13. All these performances may be heard on: *The Great Violinists: Recordings from 1900-1913*, Testament SBT2 1323 (issued 2003).

14. That Joachim's playing has been underestimated by commentators on his recordings is suggested by reviews of his earlier concerts. Eduard Hanslick: *Music Criticisms 1846-99*, translated Henry Pleasants, revised edition Harmondsworth 1963, pp. 78-81. By 1890, however, George Bernard Shaw found him very variable, much more impressive in nineteenth-century repertoire than in Bach, which is just what we hear on the recordings. *Shaw's Music*, London 1981, vol. 1, pp. 933-4; vol. 2, pp. 11, 270, 844-6; vol. 3, pp. 137-8.

15. Milsom: *Theory and Practice*.

16. Leopold Auer: *Violin Playing as I Teach it*, New York 1921. Quoted in Brown: *Classical and Romantic Performing Practice*, p. 522, and Milsom: *Theory and Practice*, p. 116.

17. A famous statement of this claim is Roger Norrington's in: Time to Rid Orchestras of the Shakes, *New York Times*, Sunday February 16 2003, Late Edition - Final, Section 2, p. 32.

18. Louis Spohr: *Violinschule*, Vienna 1832, pp. 175-6; translated J. Bishop, London 1843, pp. 163-8. I am indebted to Robin Stowell for discussing with me the former, and to Abigail Dolan for a copy of the latter. See also Robin Stowell: *Violin Technique*, pp. 206-7. I owe my first sight of Ferdinand David's extraordinarily revealing example 122 to Clive Brown. See Ferdinand David: *Violinschule*, Leipzig 1864; edition consulted Leipzig [1874], p. 43. Again, I am grateful to Stowell and Dolan for copies.

19. Bruno Repp: Probing the cognitive representation of musical time: Structural constraints on the perception of timing perturbations, in: *Cognition* 44 (1992) pp. 241-81.

20. It is only fair to point out that Colin Gough has suggested to me that this difference may be no more than an artefact of the different recording processes, acoustic and electric. The possibility remains to be thoroughly tested by looking closely at many other players who recorded using both processes.

21. I am indebted to Clive Brown for fascinating discussion of this issue, and in particular for his thoughts on string quartet playing and comparisons between the Klingler (Berlin), Rosé Vienna, and Capet (Paris) Quartets. As Robin Stowell pointed out in his contribution, Louis Lochner reports Kreisler's attribution of his vibrato style to the Franco-Belgian tradition, contrasting it with Joachim. How accurate Kreisler's little historical sketch may be remains to be determined. (Louis P. Lochner: *Fritz Kreisler*, New York 1950, p. 21.) Lochner also reports a very early experiment by Eugene Redervill in 1916 in which he slowed down a Kreisler recording in order to study his vibrato (pp. 272-3).

22. Leech-Wilkinson, study in progress.

23. Leech-Wilkinson: Portamento and Musical Meaning.